

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>RL1-346WO</b>	<b>FOR FURTHER ACTION</b>		see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. <b>PCT/IB2004/000843</b>	International filing date (day/month/year) <b>22/03/2004</b>	(Earliest) Priority Date (day/month/year) <b>21/03/2003</b>	
Applicant  <b>RANBAXY LABORATORIES LIMITED</b>			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

**4. With regard to the title,**

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

**PROCESS FOR THE PREPARATION OF DONEPEZIL AND DERIVATIVES THEREOF**

**5. With regard to the abstract,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. With regards to the drawings,**

a. the figure of the **drawings** to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB2004/000843

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K31/4465 C07D211/32 C07D213/50

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BEILSTEIN Data, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	US 6 649 765 B1 (PANDURANG SUTAR RAJIV ET AL) 18 November 2003 (2003-11-18) column 3, lines 10-14 -----	1-16,51, 52
X	US 6 413 986 B1 (EFFLAND RICHARD C ET AL) 2 July 2002 (2002-07-02) cited in the application see reaction scheme of columns 9 and 10 -----	1-16,51, 52
X	US 6 252 081 B1 (IIMURA YOICHI) 26 June 2001 (2001-06-26) cited in the application see column 3, last step -----	1-16,51, 52
X	WO 97/22584 A (PFIZER ; DEVRIES KEITH M (US)) 26 June 1997 (1997-06-26) cited in the application page 5 -----	1-16,51, 52
-/-		

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*G\* document member of the same patent family

Date of the actual completion of the international search

22 July 2004

Date of mailing of the international search report

10/08/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Bérillon, L

# INTERNATIONAL SEARCH REPORT

International Application No

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 086 706 A (EISAI CO LTD) 28 March 2001 (2001-03-28) claim 2 -----	53
X	CLARK J. ET AL.: BIOORGANIC AND MEDICINAL CHEMISTRY LETTERS, 2002, pages 2565-2568, XP002289468 see scheme 1, step c -----	17-31

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-16, 51-53

Preparation of intermediate II  
Preparation of donepezil  
Composition containing donepezil  
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2. claims: 17-31

Preparation of intermediate III  
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3. claims: claims 32-50

Preparation of derivatives I  
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB2004/000843

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB2004/000843

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6649765	B1	18-11-2003	NONE	
US 6413986	B1	02-07-2002	EP 0535496 A1 JP 2961024 B2 JP 5194387 A	07-04-1993 12-10-1999 03-08-1993
US 6252081	B1	26-06-2001	CA 2316360 A1 EP 1047674 A1 JP 11263774 A WO 9936405 A1	22-07-1999 02-11-2000 28-09-1999 22-07-1999
WO 9722584	A	26-06-1997	AP 708 A AU 716462 B2 AU 7092596 A BG 102525 A BR 9612018 A CA 2237647 A1 CZ 9801808 A3 EP 0883607 A1 HR 960592 A1 HU 9904275 A2 WO 9722584 A1 JP 3066083 B2 JP 11500756 T MA 24032 A1 NO 982712 A NZ 318843 A OA 10694 A PL 327512 A1 RU 2160731 C2 SK 75498 A3 TW 414787 B ZA 9610533 A	04-12-1998 24-02-2000 14-07-1997 31-05-1999 17-02-1999 26-06-1997 12-05-1999 16-12-1998 30-06-1998 28-05-2000 26-06-1997 17-07-2000 19-01-1999 01-07-1997 12-06-1998 28-01-2000 04-05-2001 21-12-1998 20-12-2000 06-08-1999 11-12-2000 15-06-1998
EP 1086706	A	28-03-2001	WO 0059544 A1 AT 254928 T DE 69913138 D1 DK 1086706 T3 EP 1086706 A1 PT 1086706 T US 6372760 B1	12-10-2000 15-12-2003 08-01-2004 08-03-2004 28-03-2001 27-02-2004 16-04-2002